Bentonite GIS Layer

This GIS layer displays mapped geologic units having bentonite resource potential in Utah. Bentonite is used in drilling mud, as an absorbent, as a binder for foundry sand and iron ore pelletizing, as an environmental sealer, and for a variety of other applications. Bentonite generally consists of smectite clays and for industrial use is generally classified as sodium (Na) or calcium (Ca) bentonite depending on the dominant composition of the clay. Na bentonites have more swelling capability than Ca bentonites, which can be important for a variety of applications. Several geologic units in Utah contain bentonite. Where possible, we used the most recent GIS data from 1:100,000-scale geologic mapping to build this layer. Where detailed mapping was unavailable, we used the 1:500,000-scale geologic map of Utah. Typically, only specific zones within a geologic formation contain bentonite, so the entire mapped exposure of a unit does not imply resource potential. Each polygon within the bentonite layer has the following associated attributes: geologic unit name, unit age, resource potential, and geologic map reference.

All of the geologic units in the layer are assumed to have some resource potential for bentonite based on available data. Limited data are available on bentonite resource potential in Utah and our resource potential rankings were primarily based on past production. We assigned a "**high**" resource potential ranking to exposures of bentonite-bearing units in areas that have had significant past production. We assigned a "**moderate**" resource potential to areas where lesser bentonite production has occurred. An "**undetermined**" resource potential ranking was assigned to exposures of geologic units that are known to have bentonitic layers, but additional supporting data are limited or non-existent.

This is not an exhaustive dataset. Other geologic units in Utah may have resource potential for bentonite but were not selected for this layer due to lack of substantial data.

NOTE: Our determinations of bentonite resource potential DO NOT imply a determination of locatability for claim-staking purposes.

Data used to evaluate bentonite for this layer came from published and unpublished sources.

Useful references:

Hall, R.B., editor, 1985, Clays and clay minerals, western Colorado and eastern and central Utah: AIPEA 1985 International Clay Conference Field Trip Guidebook, 76 p.

Keller, W.D., 1962, Clay minerals in the Morrison Formation of the Colorado Plateau: U.S. Geological Survey Bulletin 1150, 90 p.

Schultz, L.G., 1963, Clay minerals in Triassic rocks of the Colorado Plateau: U.S. Geological Survey Bulletin 1147-C, 71 p.